AD-A147 365 MECHANICAL PROPERTY DATA 7050-T736511 ALLOY(U) DAYTON 1/1
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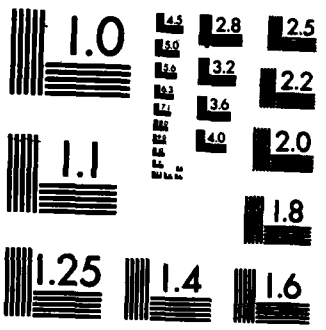
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UDR-TM-84-35

MECHANICAL PROPERTY DATA
7050-T736511 ALUMINUM ALLOY

ALUMINUM EXTRUSION

OCTOBER 1984

Prepared By:

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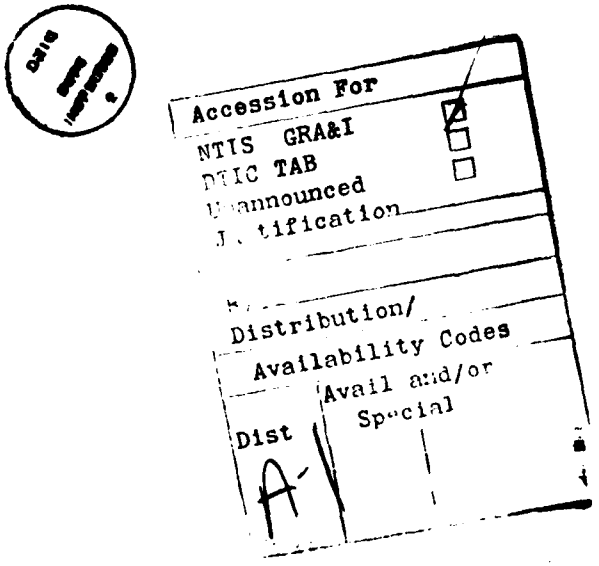
This data sheet was prepared by the University of Dayton Research Institute under Contract No. F33615-82-C-5102, under the direction of the Air Force Wright Aeronautical Laboratories, Materials Laboratory, Mr. Neal Ontko, MLSE, Technical Monitor.

Notice



7050-T736511 Aluminum Alloy Extrusion

Material Description

This 7050 Aluminum Alloy was produced by Martin Marietta in the form of extrusions and heat treated to the T736511 temper. Twelve extrusions were used in obtaining samples for this test program. Due to the large variation in the geometry of the extrusions some variation in test sample length and thickness was required. This is most evident with the tensile samples in the long transverse direction in which both long and short as well as rectangular and round samples were used.

The average chemical composition of these extrusions is as follows:

Chemical Composition	Percent Weight
Silicon	.05
Iron	.11
Copper	2.24
Magnesuim	2.29
Nickel	.01
Zinc	6.38
Titanium	.03
Lead	.01
Zirconium	.10
Aluminum	Balance

Processing and Heat Treating

The 7050 Aluminum Alloy was processed and formed into various shapes by extrusion. These extrusions were heat treated to the T736511 temper.

Results

Data from samples of the 12 extrusions are included in this report. The average values for tension, compression, shear and bearing are listed in Table 1 by specimen direction. The elongation data presented was generated from long rectangular samples

only. The shear results were obtained from the "Amsler" double pin shear fixture.

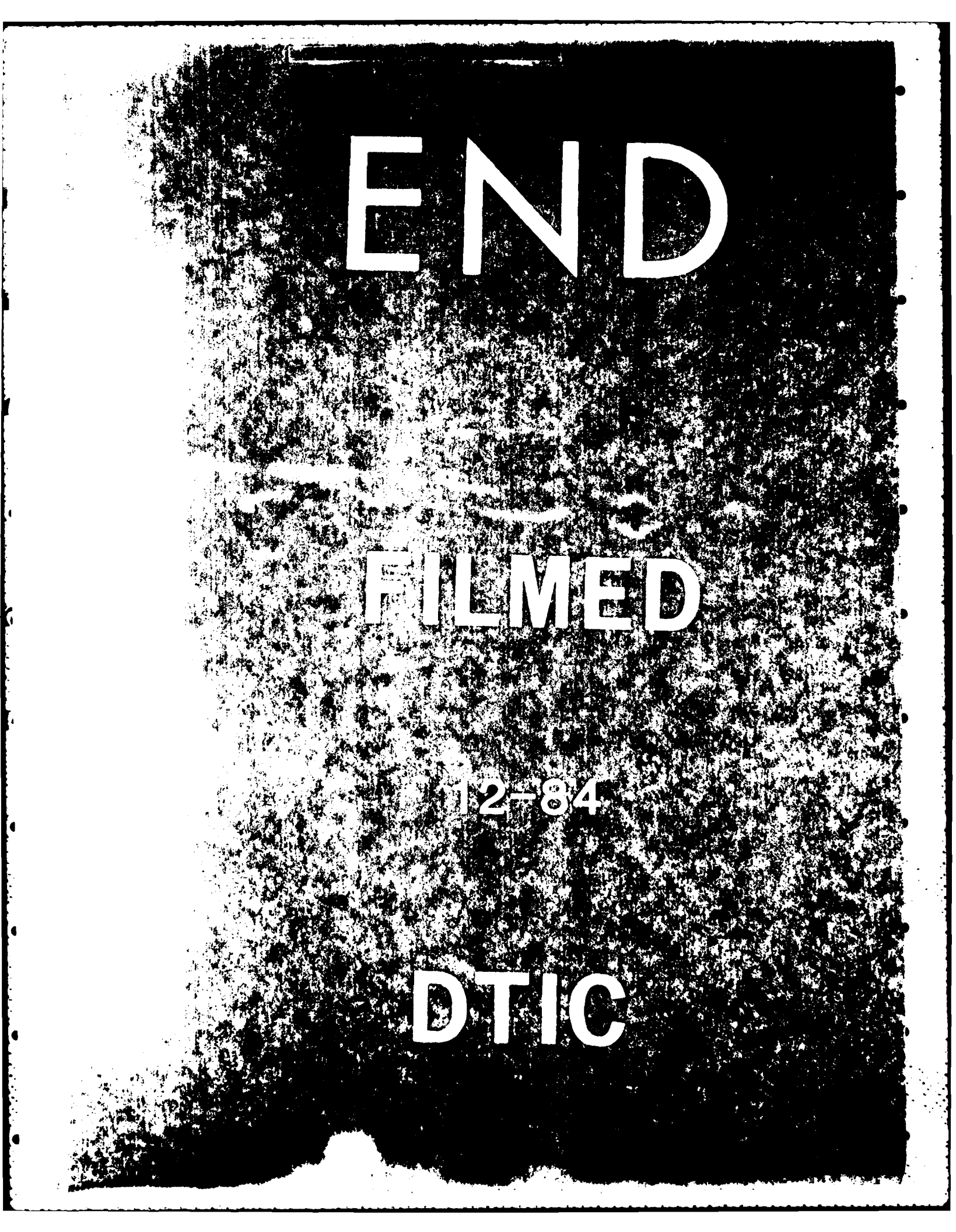
TABLE 1
ALUMINUM EXTRUSION (7050-T736511)[a]
R.T.

Properties	Plate Direction	
	Longitudinal	Long Transverse
Tension		
TUS, Ksi (MPa)	78.98 (544.6)	77.35 (533.3)
TYS, Ksi (MPa)	69.57 (479.7)	67.19 (463.3)
RA, percent	28.77	26.04
E, 10^3Ksi (GPa)	10.37 (71.54)	10.31 (71.05)
e, percent in 2 in[b] (50.8 mm)	13.53	13.65
Compression		
CYS, Ksi (MPa)	70.35 (485.1)	69.96 (482.3)
E_c, 10^3Ksi (GPa)	10.6 (73.1)	10.84 (74.76)
Shear		
SUS, Ksi (MPa)[c]	46.30 (319.3)	44.79 (308.8)
Bearing		
e/D = 1.5		
BUS, Ksi (MPa)	119.7 (825.4)	118.80 (819.4)
BYS, Ksi (MPa)	95.69 (659.6)	95.24 (656.7)
e/D = 2.0		
BUS, Ksi (MPa)	152.4 (1051.0)	153.10 (1056.0)
BYS, Ksi (MPa)	114.90 (792.4)	116.60 (804.1)

(a) Values are average of triplicate room temperature test conducted on 12 extrusions at the University of Dayton Research Institute under the subject contract.

(b) Elongation values from long, rectangular samples. Twelve extrusions in longitudinal direction, two extrusions in long transverse direction. Gage section: 2 in long x .5 in wide.

(c) "Amsler" Double pin shear test conducted on 10 extrusions in the longitudinal direction and 9 extrusions in the long transverse direction.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